

**REMARKS**

This application has been amended in manner that is believed to place it in condition for allowance at the time of the next Official Action.

Claims 14-17 and 19-24 are pending in the application. Claims 14-17 and 19-24 remain unchanged.

Claims 1-13, 18 and 25-33 have been canceled without prejudice or disclaimer and may be the subject of a future application.

Applicant respectfully submit that no new matter has been added to the disclosure.

Claim 25 was rejected under 35 U.S.C. §102(b) as allegedly being anticipated by SHILO et al. Applicant believes the present Amendment overcomes this rejection.

As noted above, claim 25 has been canceled. Accordingly, Applicant respectfully requests that this rejection be withdrawn.

Claims 14-17 and 19-24 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over SHILO et al and NAKABAYASHI. This rejection is traversed.

Applicants respectfully submit that one skilled in the art would have lacked the motivation to combine and modify the publications in a manner that would result in the claimed invention.

SHILO discloses a strain of cyanobacteria that can be used to form and excrete a material useful as an emulsifying agent in petroleum products. The

cyanobacteria is a benthic filamentous cyanobacterium of the Phormidium genus in the family Oscillatoriaceae. (see abstract, col. 1, lines 35-55).

NAKABAYASHI discloses a method for treating a variety of microorganisms with an acid, and alkali or hydrophilic solvent prior to mechanically rupturing the cell membrane. NAKABAYASHI aims to improve the processability and digestibility of microorganisms (e.g., by releasing or eluding proteins or other intracellular substances outside the cells (see col. 1, lines 15-24)).

The aims of SHILO and NAKABAYASHI are each very different. There is no indication that the resulting products obtained by NAKABAYASHI can be used as an emulsifying agent in accordance with SHILO.

Additionally, Applicants note that algae can be a sensitive organism. The process used to culture one microorganism may significantly impact the quality of another. In this regard, there is no suggestion that the benthic filamentous cyanobacterium of the Phormidium genus in the family Oscillatoriaceae of SHILO can be processed in accordance with NAKABAYASHI. In this regard, Applicants submit that one skilled in the art of the resulting algae.

In this regard, Applicant respectfully submits that one skilled in the art would not have been able to predict how a microorganism such as a blue-green algae would be affected by the proposed combination of teachings. In *KSR*, the Supreme Court noted that an invention may have been obvious "[w]hen there [was]. . . a design need to market pressure to solve a problem and there [were] . . . a finite number of identified, predictable solutions." 127 S. Ct. at 1742 (tense

changes supplied to clarify, as the Court sated and as per 35 U.S.C. § 103, that the obviousness inquiry must rely upon evidence available “at the time” of the invention, see *Takeda*, 492 F.3d at 1356 n.2). The Supreme Court’s analysis in *KSR* assumes a starting reference point or points in the art, prior to the time of invention, from which a skilled artisan might identify a problem or pursue potential solutions. Second, *KSR* presupposes that the record up to the time of invention would give some reasons, available within the knowledge of one of skill in the art, to make particular modifications to achieve the claimed compound. See *Takeda*, 492 F.3d at 1357 (“Thus, in cases involving new chemical compounds, it remains necessary to identify some reason that would have led a chemist to modify a known compound in a particular manner to establish prima facie obviousness of a new claimed compound.”). Third, the Supreme Court’s analysis in *KSR* presumes that the record before the time of invention would supply some reasons for narrowing the prior art universe to a “finite number of identified, predictable solutions,” 127 S. Ct. at 1742. In *Ortho-McNeil Pharmaceutical, Inc., v. Mylan Laboratories, Inc.*, 520 F.3d 1358, 1364 (Fed. Cir. 2008), the Federal Circuit further explained that this is “easily traversed, small and finite number of alternatives . . . might support an inference of obviousness.” To the extent an art is unpredictable, as the chemical arts often are, *KSR*’s focus on these “identified, predictable solutions” may present a difficult hurdle because potential solutions are less likely to be genuinely predictable.

In view of the above, Applicant respectfully submits that one skilled in the art would lack the motivation to combine and modify the publications in a manner that would result in the claimed invention.

Moreover, even if one skilled in the art were able to combine and modify the publications, the proposed combination of publications would still not result in the claimed invention.

SHILO discloses a strain of cyanobacteria used to form and excrete material useful as an emulsifying agent. The emulsifying agent can be used to form emulsions with various hydrocarbons and oils (see abstract). SHILO discloses at col. 4, lines 62-65 of the specification that the culture medium contains "essential materials", which include nitrogen and phosphate. Phosphate, a salt of phosphoric acid, is an inorganic compound. In this regard, SHILO fails to disclose or suggest a method for culturing organic blue-green algae in an organic environment free of inorganic additives (see independent claim 14).

The Official Action cites to NAKABAYASHI for the proposition that it would have been obvious for a culture medium to contain edible microorganisms, such as *Bacillus subtilis*. However, NAKABAYASHI fails to remedy the deficiencies of SHILO for reference purposes.

NAKABAYASHI discloses a method for treating a microorganism which comprises chemically treating a microorganism with at least one agent selected from the group consisting of an acid, and an alkaline in a hydrophilic solvent.

The treated cell is then mechanically treated to rupture the cell membrane of the microorganism (Abstract). Products within the cell can then be harvested.

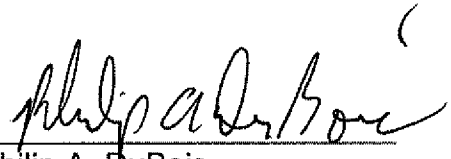
No reference is made to culturing a microorganism in an environment free of inorganic additives. Thus, NAKABAYASHI neither discloses nor suggests culturing organic blue-green algae in an organic environment free of inorganic additives. In this regard, NAKABAYASHI fails to remedy the deficiencies of SHILO for reference purposes. Applicant respectfully submits that the proposed combination of references fails to disclose or suggest the claimed invention.

#### Conclusion

In view of the present Amendment and foregoing Remarks, therefore, Applicant believes that the present application is condition for allowance at the time of the next Official Action. Allowance and passage to issuance is respectfully requested.

Respectfully submitted,

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